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Art Unit: 2672

1. A method of measuring video quality of an input sequence (IS) of digital pictures, said method comprising the steps of:
 - determining (21) at least one reference level (JND) above which visual artifacts become noticeable to a group of subjects, with a corresponding predetermined artifact metric (M), from a set of reference sequences (RS) of digital pictures only comprising a corresponding artifact,
 - measuring (22) at least one artifact level (L) of the input sequence with the corresponding predetermined artifact metric (M),
 - computing (23) a video quality metric (OQM) of the input sequence from at least one ratio of the artifact level (L) to the reference level (JND) corresponding to a same predetermined artifact metric.
2. A method of measuring video quality as claimed in claim 1, comprising the steps of:
 - determining (21a) a blocking reference level (JNDB) with a predetermined blocking artifact metric (BM), from a set of reference sequences (BRS) of digital pictures only comprising blocking artifacts,
 - determining (21b) a ringing reference level (JNDR) with a predetermined ringing artifact metric (RM), from a set of reference sequences (RRS) of digital pictures only comprising ringing artifacts,
 - determining (21c) a corner outlier reference level (JNDC) with a predetermined corner outlier metric (CM), from a set of reference sequences (CRS) of digital pictures only comprising corner outlier artifacts,
 - measuring (22a,22b,22c) a blocking artifact level (B), a ringing artifact level (R), and a corner outlier level (C) of the input sequence with the blocking artifact metric (BM), the ringing artifact metric (RM), and the corner outlier metric (CM), respectively, and
 - computing (23) the video quality metric (OQM) of the input sequence of digital pictures from ratios of the blocking artifact level (B) to the blocking reference level (JNDB), the ringing artifact level (R) to the ringing reference level (JNDR), and the corner outlier level (C) to the corner outlier reference level (JNDC).

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3. A computer program product for an integrated circuit that comprises a set of instructions, which, when loaded into said integrated circuit, causes the integrated circuit to carry out the method as claimed in claim 1 .

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4.

A method of post-processing an input sequence (IS) of digital pictures, said method comprising the steps of:

- determining (21) at least one reference level (JND) above which visual artifacts become noticeable to a group of subjects, with a corresponding predetermined artifact metric (M), from a set of reference sequences (RS) of digital pictures only comprising a corresponding artifact,
- measuring (22) at least one artifact level (L) of the input sequence with the corresponding predetermined artifact metric (M),
- computing (23) a video quality metric (OQM) of the input sequence from at least one ratio of the artifact level (L) to the reference level (JND) corresponding to a same predetermined artifact metric, and
- correcting (61) the input sequence of digital pictures as a function of the video quality metric, for providing an output sequence (OS) of digital pictures.

5.

A method of encoding an input sequence (IS) of digital pictures, said method comprising the steps of:

- first encoding (71) the input sequence of digital pictures for providing encoding parameters,
- determining (21) at least one reference level (JND) above which visual artifacts become noticeable to a group of subjects, with a corresponding predetermined artifact metric (M), from a set of reference sequences (RS) of digital pictures only comprising a corresponding artifact,
- measuring (22) at least one artifact level (L) of the input sequence with the corresponding predetermined artifact metric (M),
- computing (23) a video quality metric (OQM) of the input sequence from at least one ratio of the artifact level (L) to the reference level (JND) corresponding to a same predetermined artifact metric,
- modifying the encoding parameters as a function of the video quality metric, and
- second encoding (72) the input sequence of digital pictures for providing a sequence of encoded digital pictures (ES) from the modified encoding parameters (MEP).

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6.

A device for measuring video quality of an input sequence of digital pictures, comprising:

- at least one means (22) for measuring an artifact level (L) with a corresponding predetermined artifact metric (M),
- means for computing (23) a video quality metric (OQM) of said input sequence from at least one ratio of an artifact level (L) to a reference level (JND) determined by a group of subjects, with the corresponding predetermined artifact metric (M), in a sequence of digital pictures only comprising a corresponding artifact, from a level above which visual artifacts become noticeable.

7.

A device for measuring video quality as claimed in claim 6, comprising:

- means for measuring (22a) a blocking artifact level (B) of the input sequence,
- means for measuring (22b) a ringing artifact level (R) of the input sequence,
- means for measuring (22c) a corner outlier level (C) of the input sequence,
- means for computing a video quality metric (OQM) for said input sequence from ratios of the blocking artifact level to a blocking reference level, the ringing artifact level to a ringing reference level, and the corner outlier level to a corner outlier reference level.

8.

A device for post-processing an input sequence (IS) of digital pictures, comprising:

- at least one means for measuring (22) an artifact level (L) of the input sequence with a corresponding predetermined artifact metric (M),
- means for computing (23) a video quality metric (OQM) of the input sequence from at least one ratio of the artifact level (L) to a reference level (JND) determined by a group of subjects, with the corresponding predetermined artifact metric (M), in a sequence of digital pictures only comprising a corresponding artifact, from a level above which visual artifacts become noticeable, and
- means for correcting (61) the input sequence of digital pictures as a function of the video quality metric, and adapted to provide an output sequence (OS) of digital pictures.

9.

A device for encoding an input sequence (IS) of digital pictures, comprising:

- means for a first encoding (71) of the input sequence of digital pictures to provide encoding parameters,

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- at least one means for measuring (22) an artifact level (L) of the input sequence with a corresponding predetermined artifact metric (M),
- means for computing (23) a video quality metric (OQM) of the input sequence from at least one ratio of the artifact level (L) to a reference level (JND) determined by a group of subjects, with the corresponding predetermined artifact metric (M), in a sequence of digital pictures only comprising a corresponding artifact, from a level above which visual artifacts become noticeable,
- means for modifying the encoding parameters as a function of the video quality metric, and
- means for a second encoding (72) of the input sequence of digital pictures adapted to provide a sequence of encoded digital pictures (ES) from the modified encoding parameters (MEP).